

## Your key to understanding urinalysis dilutions

When a urine sample is crowded and the edges of the elements overlap, the SediVue Dx convolutional neural network may have difficulty discerning the elements from one another. Diluting the urine sample will help spread the elements apart for easier identification and classification.

This document will help you identify when dilutions may be necessary both preanalysis and postanalysis and provide you with insight to help reduce additional dilution work-flow steps.

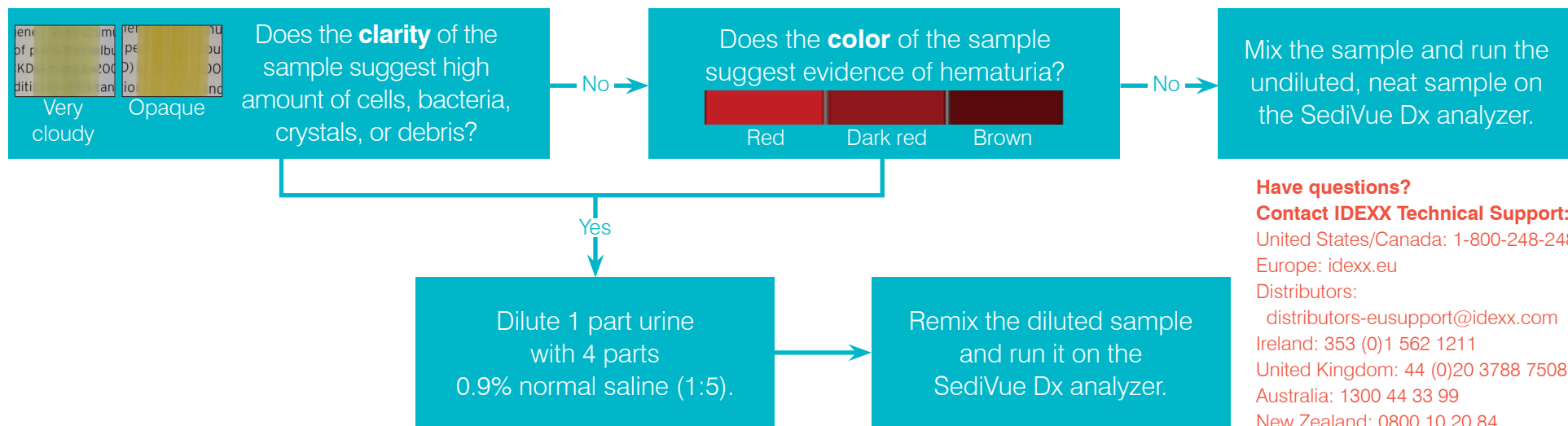
**Note:** Diluting a urine sample may affect the pH and osmolality of the sample and lead to changes in cellular appearance and the presence of crystals.

## Preanalysis dilutions guide

There are times during the physical evaluation of the **clarity** and **color** of urine samples when it's obvious that samples will be crowded with cells, bacteria, debris, or crystals (e.g., gross hematuria). This evaluation will aid in determining if a dilution should be considered preanalysis.

Use the guidelines below to determine if the sample should be diluted prior to running it on the SediVue Dx analyzer.

**Note:** It's always good practice to remove an aliquot of the original sample in case additional testing is needed.



# Postanalysis dilutions guide

When a “crowded” sample is run on the SediVue Dx analyzer, your semiquantitative results may be suppressed and you will be prompted to consider a dilution. When this occurs, an image review is essential to determine the appropriate next steps.

- If the images provide clinical insight, a simple annotation to the patient record may be applied and you may be able to move on without a dilution.<sup>1</sup>
- If the images do **not** provide clinical insight, diluting the urine sample will help to spread the elements apart for more accurate analysis. The dilution ratio will vary depending on the severity of the crowding in the sample. Follow the guidelines below to determine if a postanalysis dilution may be helpful.

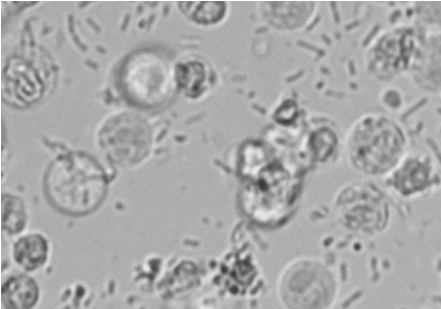
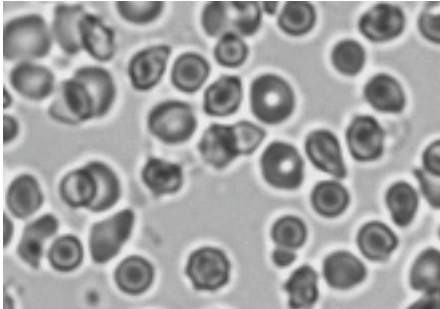
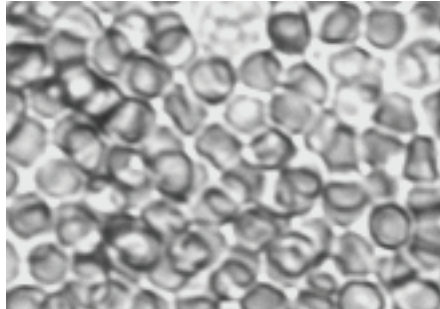
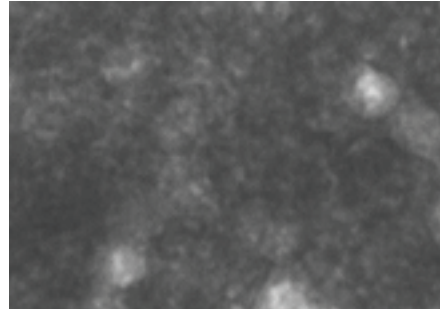
## Do the images provide clinical insight?

If you are prompted to consider a dilution, but you can obtain clinical insight and information to make a diagnosis, a dilution is unnecessary.<sup>2</sup>

### Performing a dilution<sup>†</sup>

1. On the Select Instruments screen, tap **Run Dilution**, specify the desired dilution factor (total parts), and tap **Run**.
2. In a test tube, mix the urine with the selected parts of 0.9% normal saline 10 times.
3. Immediately inject 165  $\mu$ L of the diluted sample into the cartridge fill port.
4. Press the **Start** button on the analyzer.

<sup>†</sup>IDEXX VetLab\* Station version 4.48 or higher required

Yes	No
<p><b>Image provides clinical insight</b> (bacteriuria and pyuria evident)</p>  <p><b>No dilution required</b></p>	<p><b>Slightly dense—some background</b> (obvious hematuria; bacteria may be hidden)</p>  <p><b>Consider dilution:</b> 1 part urine and 1 part saline<sup>3</sup> (1:2)</p>
	<p><b>Moderately dense—little background</b> (obvious hematuria; other formed elements may be hidden)</p>  <p><b>Dilute:</b> 1 part urine and 4 parts saline<sup>4</sup> (1:5)</p>
	<p><b>Extremely dense—no background</b> (overlapping cells make it impossible to discern elements without dilution)</p>  <p><b>Dilute:</b> 1 part urine and 9 parts saline<sup>4</sup> (1:10)</p>



<sup>1</sup> Dilution flags may also result from excessive bubbles and/or fibers from dirty optics.

<sup>2</sup> Only runs that produce both numerical results and images are invoiced.

<sup>3</sup> It may be helpful to confirm bacteria with an air-dried, stained preparation (“dry prep”), rather than a dilution.

<sup>4</sup> Higher concentrations of diluent will affect the pH and osmolality of the sample and lead to changes in cellular appearance and the presence of crystals.

